IPW

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,739	10/14/2003	Dean J. Larson	LAM1P167X2/P1066X	6129

22434 7590 04/27/2005

BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER
ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 04/27/2005

OIPE IAP35
NOV 03 2005
PATENT & TRADEMARK OFFICE

OIPE IAP35
NOV 03 2005
PATENT & TRADEMARK OFFICE

Please find below and/or attached an Office communication concerning this application or proceeding.

BEYER WEAVER & THOMAS, LLP
ATTY: MBL ASSOC: MBL
ACTION: Resp to OA
DUE DATES 7/27/05
DOCKETED: 5/02 BY: ell
DOCKET NO: LAM1P167X2

cw 5/2

	Application No. 10/685,739	**Applicant(s)** LARSON ET AL.	
Office Action Summary	**Examiner** Rudy Zervigon	**Art Unit** 1763	

OIPE
NOV 03 2005
PATENT & TRADEMARK OFFICE

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *All*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/318,612. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 10/318,612 do not teach process gas “orifice”, as claimed in all 18 claims of the present application. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide “orifice” to the gas conveying device of copending Application No. 10/318,612. Motivation to provide “orifice” to the gas conveying device of copending Application No. 10/318,612 is for controlled conveyace of process gas.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Motoda, Takashi et al. (US 5,496,408 A). Motoda teaches an apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to the gas supply ("impurity gas" on 43a; Figure 7), wherein the flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from the gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7), wherein the master leg (connecting 43a and 44; Figure 7) comprises a master fixed orifice[1] (inherent, all piping have "orifice"); and a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), wherein the first slave leg (connecting 43a and 50a; Figure 7) comprises: a first

---

[1] Orifice *n* – an opening though which something may pass. Merriam-Webster's Collegiate Dictionary - 10th Ed. p.820

slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) fixed orifice (inherent, all piping have "orifice"), as claimed by claim 1.

Morimoto further teaches:

i. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, further comprising: a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7) and the first slave leg (connecting 43a and 50a; Figure 7), wherein the second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 2

ii. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 2, further comprising: a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), the first slave leg (connecting 43a and 50a; Figure 7), and the second slave leg (connecting 43a and 50b; Figure 7), wherein the third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 3

iii. A semiconductor chip formed using the apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, as claimed by claim 17 – Applicant's "A semiconductor chip formed using the apparatus" is a recitation of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-7, 9, 10, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) in view of Shinozuka; Shyuhei et al. (US 6,315,858 B1). Motoda is discussed above. Motoda does not teach

iv. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising: a fourth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), and Motoda's third slave leg (connecting 43a and 50c; Figure 7), wherein the fourth slave leg comprises: a fourth slave leg valve; and a fourth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1); and a fifth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), Motoda's third slave leg (connecting 43a and 50c; Figure 7), and The fourth slave leg, wherein The fifth slave leg comprises: a fifth slave leg valve; and a fifth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 4

v. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, further comprising a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), third slave leg (connecting 43a and 50c; Figure 7), fourth slave leg, and fifth slave leg, as claimed by claim 5

vi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 5, wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller, as claimed by claim 6

vii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 6, wherein The tuning gas system is in fluid connection with Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimd by claim 7

viii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 8, wherein the first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 9

ix. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, the Motoda's first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 10

x. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, wherein the first, second, and third leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 12

xi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, wherein Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1) and Motoda's first leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 15

Shinozuka teaches a process gas delivery apparatus (Figure 5; column 4; lines 51-58) including an equivalent flat plate fixed orifice (39; Figure 5, 6) and a tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control.

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control, inclusive, for Motoda to reproduce his slave leg apparatus parts.

Motivation for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) is for process gas delivery and control resulting in area-specific substrate processing as taught by Shinozuka (column 1, line 64 – column 2, line 8). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

7. Claims 8, 11, 13, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A). Motoda and Shinozuka are discussed above. Motoda and Shinozuka do not teach Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 7, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 8

Motoda and Shinozuka do not teach:

i. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 10, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 11

ii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 12, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 13

iii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 14

iv. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 15, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 17

v. An apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to Motoda's gas supply ("impurity gas" on 43a; Figure 7), wherein Motoda's flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from Motoda's gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7), wherein Motoda's master leg (connecting 43a and 44; Figure 7) comprises a master flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), wherein Motoda's first slave leg (connecting 43a and

50a; Figure 7) comprises: a first slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7) and Motoda's first slave leg (connecting 43a and 50a; Figure 7), wherein Motoda's second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), and Motoda's second slave leg (connecting 43a and 50b; Figure 7), wherein Motoda's third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and third slave leg (connecting 43a and 50c; Figure 7), wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller; and a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 18

Ohmi teaches a zone selection device ("monoblock valves" inside dotted lines; Figure 4; column 10; lines 16-30) for a gas delivery apparatus (Figure 1).

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus.

Motivation for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus is for minimizing "dead zones" as taught by Shinozuka's "monoblock valves" (column 9, lines 5-10).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 20020192369 A1

US 20020170598 A1

US 20020144657 A1

US 20020108570 A1

US 20020100416 A1

US 20020014207 A1

US 20040112540 A

US 20020144657 A

US 6508913 B2

US 6457494 B1

US 6315858 B1

US 6302139 B1

US 6296711 B1

US 6253783 B1

US 6224681 B1

US 6155289 A

US 6132515 A

US 6119710 A

US 6113699 A

US 6058958 A

US 6039074 A

US 5916369 A

US 5882410 A

US 5865205 A

US 5749389 A

US 5630935 A

US 5620524 A

US 5595603 A

US 5589110 A

US 5496408 A

US 5460654 A

US 5313982 A

US 5310426 A

US 5288325 A

US 5200388 A

US 5077875 A

US 4835114 A

US 4369031 A

US 4275752 A

US 6253783 B

US 6296711 B

US 6302139 B

US 6155289 A

US 6132515 A

US 6119710 A

US 6058958 A

US 6039074 A

US 6192919 B

US 5865205 A

US 5950693 A

US 5620524 A

US 5077875 A

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

4/18/5

OIPE JC46
OCT 1 2 2004
PATENT & TRADEMARK OFFICE

OIPE IAP35
NOV 0 3 2005
PATENT & TRADEMARK OFFICE

Form 1449 (Modified) **Information Disclosure Statement By Applicant** (Use Several Sheets if Necessary)	Atty Docket No. **LAM1P167X2** Applicant: **LARSON et al.** Filing Date **October 14, 2003**	Application No.: **10/685,739** Group **1763**

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	4,980,204	12/25/90	Fujii et al.	117	98	11/15/88
	B	5,431,738	07/11/95	Murakami et al.	118	720	02/28/94
	C	5,496,408	03/05/96	Motoda et al.	118	715	10/04/93
	D	5,532,190	07/02/96	Goodyear et al.	438	710	05/15/95
	E	5,702,530	12/30/97	Shan et al.	118	723MP	06/23/95
	F	5,853,484	12/29/98	Jeong	118	715	10/09/96
	G	5,916,369	06/29/99	Anderson et al.	118	715	06/07/95
	H	5,993,555	11/30/99	Hamilton et al.	118	715	01/16/97
	I	6,001,172	12/14/99	Bhandari et al.	117	84	08/05/97
	J	6,015,595	01/18/00	Felts	427	446	05/28/98
	K	6,508,913B2	01/21/03	McMillin et al.	156	345.29	10/25/01
	L	6,589,350B1	07/08/03	Swartz	118	710	09/08/00

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation Yes	Translation No
	M							
	N							
	O							
	P							
	Q							

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	R	
	S	
	T	

Examiner	Date Considered 4/18/5

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

SEP 27 2004
PATENT & TRADEMARK OFFICE

Form 1449 (Modified) **Information Disclosure Statement By Applicant** (Use Several Sheets if Necessary)	Atty Docket No. **LAM1P167X2/P1066X2** Applicant: **LARSON et al.** Filing Date **October 14, 2003**	Application No.: **10/685,739** Group **1763**

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	6,009,830	01/04/00	Li et al.	118	723 R	11/21/97
	B	6,333,272 B1	12/25/01	McMillin et al.	438	710	10/06/00
	C	2002/0144706A1	10/10/02	Davis et al.	134	1.1	04/10/01
	D						
	E						
	F						
	G						
	H						
	I						

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation Yes	Translation No
	J	02/080251 A1	10/10/02	WIPO	H01L	21/31	Yes	
	K	0 291 181 A2	11/17/88	EPO	H01J	37/32	Yes	
	L	1 158 565 A2	11/28/01	EPO	H01J	37/32	Yes	
	M							
	N							

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	International Search Report, date of mailing September 1, 2004
	P	
	Q	

Examiner	Date Considered 4/18/5

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified) **Information Disclosure Statement By Applicant** (Use Several Sheets if Necessary)	Atty Docket No. **LAM1P167X2/P1066X** Applicant: **LARSON et al.** Filing Date **Herewith**	Application No.: **Filed Herewith** Group ~~**Unassigned**~~ 1763

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
TP	A	5,013,398	05/07/91	Long et al.	156	643	05/29/90
	B	5,134,965	08/04/92	Tokuda et al.	118	723	06/14/90
	C	5,415,728	05/16/95	Hasegawa et al.	156	643.1	01/14/93
	D	5,522,934	06/04/96	Suzuki et al.	118	723	04/25/95
	E	5,614,055	03/25/97	Fairbairn et al.	156	345	08/27/93
	F	5,736,457	04/07/98	Zhao	438	624	03/05/97
	G	5,772,771	06/30/98	Li et al.	118	723I	12/13/95
	H	6,013,155	01/11/00	McMillin et al.	156	345	06/30/97
	I	6,019,060	02/01/00	Lenz	118	723R	06/24/98
	J	6,042,687	03/28/00	Singh et al.	156	345	06/30/97
	K	6,333,272 B1	12/25/01	McMillin et al.	438	710	10/06/00

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation Yes	Translation No
	L							
	M							
	N							

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	O	
	P	
	Q	

Examiner	Date Considered 4/18/5

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

# Notice of References Cited	Application/Control No. 10/685,739	Applicant(s)/Patent Under Reexamination LARSON ET AL.	
	Examiner Rudy Zervigon	Art Unit 1763	Page 1 of 4

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2002/0192369 A1	12-2002	Morimoto et al.	427/248.1
	B	US-2002/0170598 A1	11-2002	Girard et al.	137/240
	C	US-2002/0144657 A1	10-2002	Chiang et al.	118/723.00E
	D	US-2002/0108570 A1	08-2002	Lindfors, Sven	118/715
	E	US-2002/0100416 A1	08-2002	Sun et al.	118/693
	F	US-2002/0014207 A1	02-2002	Sivaramakrishnan et al.	118/715
	G	US-6,508,913 B2	01-2003	McMillin et al.	156/345.29
	H	US-6,457,494 B1	10-2002	Gregg et al.	141/4
	I	US-6,315,858 B1	11-2001	Shinozuka et al.	156/345.33
	J	US-6,302,139 B1	10-2001	Dietz, James	137/240
	K	US-6,296,711 B1	10-2001	Loan et al.	118/726
	L	US-6,253,783 B1	07-2001	Carlsen et al.	137/14
	M	US-6,224,681 B1	05-2001	Sivaramakrishnan et al.	118/726

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Merriam-Webster's Collegiate Dictionary - 10th Ed. p.820
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 10/685,739	Applicant(s)/Patent Under Reexamination LARSON ET AL.
	Examiner Rudy Zervigon	Art Unit 1763
		Page 3 of 4

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,589,110 A	12-1996	Motoda et al.	261/61
	B	US-5,496,408 A	03-1996	Motoda et al.	118/715
	C	US-5,460,654 A	10-1995	Kikkawa et al.	118/726
	D	US-5,313,982 A	05-1994	Ohmi et al.	137/597
	E	US-5,310,426 A	05-1994	Mori, Yuzo	118/723AN
	F	US-5,288,325 A	02-1994	Gomi, Hideki	118/692
	G	US-5,200,388 A	04-1993	Abe et al.	505/447
	H	US-5,077,875 A	01-1992	Hoke et al.	118/730
	I	US-4,835,114 A	05-1989	Satou et al.	438/488
	J	US-4,369,031 A	01-1983	Goldman et al.	432/198
	K	US-4,275,752 A	06-1981	Collier et al.	137/7
	L	US-2002/0144657 A	10-2002	Chiang et al.	118/723.00E
	M	US-6,253,783 B	07-2001	Carlsen et al.	137/14

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 10/685,739	Applicant(s)/Patent Under Reexamination LARSON ET AL.	
	Examiner Rudy Zervigon	Art Unit 1763	Page 4 of 4

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,296,711 B	10-2001	Loan et al.	118/726
	B	US-6,302,139 B	10-2001	Dietz, James	137/240
	C	US-6,155,289 A	12-2000	Carlsen et al.	137/457
	D	US-6,132,515 A	10-2000	Gauthier, Scott	118/715
	E	US-6,119,710 A	09-2000	Brown, Timothy R.	137/14
	F	US-6,058,958 A	05-2000	Benkowski et al.	137/14
	G	US-6,039,074 A	03-2000	Raaijmakers et al.	137/537
	H	US-6,192,919 B	02-2001	Jackson et al.	137/382
	I	US-5,865,205 A	02-1999	Wilmer, Michael E.	137/2
	J	US-5,950,693 A	09-1999	Noah et al.	141/231
	K	US-5,620,524 A	04-1997	Fan et al.	118/726
	L	US-5,077,875 A	01-1992	Hoke et al.	118/730
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

or·gan·za \ȯr-ˈgan-zə\ *n* [prob. alter. of *Lorganza*, a trademark] (1820) : a sheer dress fabric (as of silk or nylon) resembling organdy

or·gan·zine \ˈȯr-gən-ˌzēn\ *n* [F or It; F *organsin*, fr. It *organzino*] (1699) : a raw silk yarn used for warp threads in fine fabrics

or·gasm \ˈȯr-ˌga-zəm\ *n* [NL *orgasmus*, fr. Gk *orgasmos*, fr. *organ* to grow ripe, be lustful; prob. akin to Skt *ūrjā* sap, strength] (ca. 1763) : intense or paroxysmal excitement; *esp* : the climax of sexual excitement that is usu. accompanied by the ejaculation of semen in the male and vaginal contractions in the female — **or·gas·mic** \ȯr-ˈgaz-mik\ *also* **or·gas·tic** \-ˈgas-tik\ *adj*

or·geat \ˈȯr-ˌzhä(t)\ *n* [F, fr. MF, fr. *orge* barley, fr. L *hordeum*; akin to OHG *gersta* barley] (1754) : a sweet almond-flavored nonalcoholic syrup used as a cocktail ingredient or food flavoring

or·gi·as·tic \ˌȯr-jē-ˈas-tik\ *adj* [Gk *orgiastikos*, fr. *orgiazein* to celebrate orgies, fr. *orgia*] (1698) 1 : of, relating to, or marked by orgies 2 : characterized by unrestrained emotion : FRENZIED — **or·gi·as·ti·cal·ly** \-ti-k(ə-)lē\ *adv*

or·gone \ˈȯr-ˌgōn\ *n* [prob. fr. *orgasm* + *-one* (as in *hormone*)] (1942) : a vital energy held to pervade nature and be a factor in health in the theories of Wilhelm Reich

or·gu·lous \ˈȯr-gyə-ləs, -gə-\ *adj* [ME, fr. OF *orgueilleus*, fr. *orgueil* pride, of Gmc origin; akin to OHG *urguol* distinguished] (13c) : PROUD

or·gy \ˈȯr-jē\ *n, pl* **orgies** [MF *orgie*, fr. L *orgia*, pl., fr. Gk; akin to Gk *ergon* work — more at WORK] (ca. 1561) 1 : secret ceremonial rites held in honor of an ancient Greek or Roman deity and usu. characterized by ecstatic singing and dancing 2 a : drunken revelry b : a sexual encounter involving many people; *also* : an excessive sexual indulgence 3 : something that resembles an orgy in lack of control or moderation ⟨an ~ of destruction⟩

-oria *pl of* -ORIUM

-orial *adj suffix* [ME, fr. L *-orius* -ory + ME *-al*] : of, belonging to, or connected with ⟨combinat*orial*⟩

orib·a·tid \ō-ˈri-bə-təd, ˌȯr-ə-ˈba-təd\ *n* [NL *Oribatidae* (coextensive with *Oribatoidea*), fr. *Oribata*, genus name, fr. Gk *oribatēs* walking the mountains, fr. *oros* mountain + *-batēs*, fr. *bainein* to go — more at ORIENT, COME] (1875) : any of a superfamily (Oribatoidea) of small oval eyeless nonparasitic mites having a heavily sclerotized integument with a leathery appearance — **oribatid** *adj*

ori·el \ˈōr-ē-əl, ˈȯr-\ *n* [ME, porch, oriel, fr. MF *oriol* porch] (14c) : a large bay window projecting from a wall and supported by a corbel or bracket

¹**ori·ent** \ˈōr-ē-ənt, ˈȯr-, -ē-ˌent\ *n* [ME, fr. MF, fr. L *orient-*, *oriens*, fr. prp. of *oriri* to rise; akin to Skt *ṛṇoti* he moves, arises, Gk *ornynai* to rouse, *oros* mountain] (14c) 1 *archaic* : EAST 1b 2 *cap* : EAST 2 3 a : a pearl of great luster b : the luster of a pearl

²**orient** *adj* (15c) 1 *archaic* : ORIENTAL 1 2 a : LUSTROUS, SPARKLING ⟨~ gems⟩ b *archaic* : RADIANT, GLOWING 3 *archaic* : rising in the sky

³**ori·ent** \ˈōr-ē-ˌent, ˈȯr-\ *vt* [F *orienter*, fr. MF, fr. *orient*] (ca. 1741) 1 a : to cause to face or point toward the east; *specif* : to build (a church or temple) with the longitudinal axis pointing eastward and the chief altar at the eastern end b : to set or arrange in any determinate position esp. in relation to the points of the compass c : to ascertain the bearings of 2 a : to set right by adjusting to facts or principles b : to acquaint with the existing situation or environment 3 : to direct (as a book or film) toward the interests of a particular group 4 : to cause the axes of the molecules of to assume the same direction

ori·en·tal \ˌōr-ē-ˈen-tᵊl, ˌȯr-\ *adj* (14c) 1 *often cap* : of, relating to, or situated in the Orient 2 a : of superior grade, luster, or value b : being corundum or sapphire but simulating another gem in color 3 *often cap* : of, relating to, or having the characteristics of Orientals 4 *cap* : of, relating to, or constituting the biogeographic region that includes Asia south and southeast of the Himalayas and the Malay Archipelago west of Wallace's line — **ori·en·tal·ly** \-tᵊl-ē\ *adv*

Oriental *n* (15c) : a member of one of the indigenous peoples of the Orient

oriental fruit moth *n* (1921) : a small nearly cosmopolitan moth (*Grapholita molesta*) prob. of Japanese origin whose larva is injurious to the twigs and fruit of orchard trees and esp. the peach — called also *oriental peach moth*

Ori·en·ta·lia \ˌōr-ē-ən-ˈtāl-yə, ˌȯr-, -ˌen-, -ˈtā-lē-ə\ *n pl* [NL] (1903) : materials concerning or characteristic of the Orient

ori·en·tal·ism \ˌōr-ē-ˈen-tᵊl-ˌi-zəm\ *n, often cap* (1769) 1 : a trait, custom, or habit of expression characteristic of oriental peoples 2 : scholarship or learning in oriental subjects — **ori·en·tal·ist** \-tᵊl-ist\ *n, often cap*

ori·en·tal·ize \-tᵊl-ˌīz\ *vb* **-ized; -iz·ing** *vt* (1823) *often cap* : to make oriental ~ *vi, often cap* : to become oriental

Oriental poppy *n* (1731) : an Asian perennial poppy (*Papaver orientale*) that is commonly cultivated for its large showy flowers

Oriental rug *n* (1881) : a handwoven or hand-knotted one-piece rug or carpet made in the Orient — called also *Oriental carpet*

ori·en·tate \ˈōr-ē-ən-ˌtāt, ˈȯr-, -ˌen-\ *vb* **-tat·ed; -tat·ing** *vt* (1849) : ORIENT ~ *vi* : to face or turn to the east

ori·en·ta·tion \ˌōr-ē-ən-ˈtā-shən, ˌȯr-, -ˌen-\ *n* (1839) 1 a : the act or process of orienting or of being oriented b : the state of being oriented; *broadly* : ARRANGEMENT, ALIGNMENT 2 : a usu. general or lasting direction of thought, inclination, or interest 3 : change of position by organs, organelles, or organisms in response to external stimulus — **ori·en·ta·tion·al** \-shnəl, -shə-nᵊl\ *adj* — **ori·en·ta·tion·al·ly** *adv*

ori·ent·ed \ˈōr-ē-ˌen-təd, ˈȯr-\ *adj* (1944) : intellectually, emotionally, or functionally directed ⟨humanistically ~ scholars⟩

ori·en·teer \ˌōr-ē-ən-ˈtir, ˌȯr-, -ˌen-\ *n* [back-formation fr. *orienteering*] (1965) : one who engages in orienteering

ori·en·teer·ing \ˌōr-ē-ən-ˈtir-iŋ, ˌȯr-, -ˌen-\ *n* [modif. of Sw *orientering*, fr. *orientera* to orient] (1948) : a cross-country race in which each participant uses a map and compass to navigate between checkpoints along an unfamiliar course

or·i·fice \ˈȯr-ə-fəs, ˈär-\ *n* [ME, fr. MF, fr. LL *orificium*, fr. L *or-*, *os* mouth + *facere* to make, do — more at ORAL, DO] (15c) : an opening (as a vent, mouth, or hole) through which something may pass — **or·i·fi·cial** \ˌȯr-ə-ˈfi-shəl, ˌär-\ *adj*

ori·flamme \ˈȯr-ə-ˌflam, ˈär-\ *n* [ME *oriflamble*, the banner of St. Denis, fr. MF, fr. ML *aurea flamma*, lit., golden flame] (1600) : a banner, symbol, or ideal inspiring devotion or courage

ori·ga·mi \ˌȯr-ə-ˈgä-mē\ *n* [Jp, fr. *ori* fold + *kam*
Japanese art or process of folding squares of pa
tional shapes

orig·a·num \ə-ˈri-gə-nəm\ *n* [ME, fr. L, wild mar
non] (14c) : any of several aromatic mints (esp. ge
as seasonings; *esp* : OREGANO 1

or·i·gin \ˈȯr-ə-jən, ˈär-\ *n* [ME *origine*, prob. fr. MF
fr. *oriri* to rise — more at ORIENT] (15c) 1 : ANCE
a : rise, beginning, or derivation from a source b
something begins or rises or from which it derives ⟨
is forgotten⟩; *also* : something that creates, causes
other ⟨this spring is the ~ of the brook⟩ 3 : the mo
larger attachment of a muscle 4 : the intersection of
syn ORIGIN, SOURCE, INCEPTION, ROOT mean the poin
thing begins its course or existence. ORIGIN applies
persons from which something is ultimately derived
causes operating before the thing itself comes into be
tion into the *origin* of baseball⟩. SOURCE applies more
where something springs into being ⟨the *source* of th
of recurrent trouble⟩. INCEPTION stresses the begin
without implying causes ⟨the business has been
inception⟩. ROOT suggests a first, ultimate, or fundam
not easily discerned ⟨the real *root* of the violence⟩.

¹**orig·i·nal** \ə-ˈrij-ə-nᵊl, -ˈrij-nəl\ *n* (14c) 1 *archaic*
from which something arises; *specif* : ORIGINATOR
which a copy, reproduction, or translation is made
posed firsthand 3 a : a person of fresh initiative o
b : a unique or eccentric person

²**original** *adj* (14c) 1 : of, relating to, or constitu
ginning : INITIAL ⟨the ~ part of the house⟩ 2
derivative, or imitative b : being the first instan
which a copy, reproduction, or translation is or can b
pendent and creative in thought or action : INVENTIV

orig·i·nal·i·ty \ə-ˌri-jə-ˈna-lə-tē\ *n* (1742) 1 : the
being original 2 : freshness of aspect, design, or st
of independent thought or constructive imagination

orig·i·nal·ly \ə-ˈri-jə-nᵊl-ē; -ˈrij-nə-lē, -ˈri-jən-\ *ad*
: by origin or derivation : INHERENTLY 2 : in the
first place : INITIALLY 3 : in a fresh or original mann

original sin *n* (14c) : the state of sin that according
ogy characterizes all human beings as a result of Adam

orig·i·nate \ə-ˈri-jə-ˌnāt\ *vb* **-nat·ed; -nat·ing** *vt* (1667
: INITIATE ~ *vi* : to take or have origin : BEGIN
orig·i·na·tion \-ˌri-jə-ˈnā-shən\ *n* — **orig·i·na·tor**

orig·i·na·tive \ə-ˈri-jə-ˌnā-tiv, -nə-\ *adj* (1827) : having
nate : CREATIVE — **orig·i·na·tive·ly** *adv*

O–ring \ˈō-ˌriŋ\ *n* (1946) : a ring (as of synthetic
gasket

ori·ole \ˈōr-ē-ˌōl, ˈȯr-, -ē-əl\ *n* [F *oriol*, fr. L *aureol*
golden — more at AUREUS] (1776) 1 : any of vario
colored Old World passerine birds (family Oriolid
Oriolus) 2 : any of various New World passerine
teridae and esp. genus *Icterus*) of which the males
yellow or black and orange

Ori·on \ə-ˈrī-ən, ō-\ *n* [L, fr. Gk *Ōriōn*] 1 : a giant
Artemis in Greek mythology 2 [L (gen. *Orionis*)]
the equator east of Taurus represented on charts
hunter with belt and sword

or·is·mol·o·gy \ˌȯr-əz-ˈmä-lə-jē, ˌär-\ *n* [Gk *horism*
horizein to define) + E *-logy* — more at HORIZON] (18
of defining technical terms — **or·is·mo·log·i·cal**
ˌär-; ō-ˌriz-\ *adj*

or·i·son \ˈȯr-ə-sən, ˈär-, -zən\ *n* [ME, fr. OF, fr. LL
L, oration] (13c) : PRAYER

-orium *n suffix, pl* **-oriums** *or* **-oria** [L, fr. neut. of
⟨haust*orium*⟩

Ori·ya \ō-ˈrē-ə\ *n* (1801) : the Indo-Aryan language

Or·lean·ist \ˈȯr-lē-ə-nist, ȯr-ˈlē-(ə-)nist\ *n* (1834) :
Orleans family in its claim to the throne of France
younger brother of Louis XIV

Or·lon \ˈȯr-ˌlän\ *trademark* — used for an acrylic fib

or·lop deck \ˈȯr-ˌläp-\ *n* [ME *overlop* deck of a single
overlōp, lit., something that overleaps] (1758) : th
ship having four or more decks

Or·mazd \ˈȯr-(ˌ)məzd, -ˌmazd\ *n* [Per *Urmazd*, fr. MP
mazdāh-] (1603) : AHURA MAZDA

or·mo·lu \ˈȯr-mə-ˌlü\ *n, often attrib* [F *or moulu*
(1765) : golden or gilded brass or bronze used for
(as in mounts for furniture)

¹**or·na·ment** \ˈȯr-nə-mənt\ *n* [ME, fr. OF *ornement*
fr. *ornare*] (13c) 1 *archaic* : a useful accessory 2
lends grace or beauty b : a manner or quality that
whose virtues or graces add luster to a place or soci
adorning or being adorned 5 : an embellishing not
the essential harmony or melody — called also *embell*

²**or·na·ment** \-ˌment\ *vt* (1720) : to provide with orna
syn see ADORN

¹**or·na·men·tal** \ˌȯr-nə-ˈmen-tᵊl\ *adj* (1646) : of, relat
as ornament; *specif* : grown as an ornamental
\-tᵊl-ē\ *adv*

²**ornamental** *n* (1650) : a decorative object; *esp* :
its beauty rather than for use

or·na·men·ta·tion \ˌȯr-nə-mən-ˈtā-shən, -ˌmen-\ *n*
thing that ornaments : EMBELLISHMENT 2 : the act
menting : the state of being ornamented

or·nate \ȯr-ˈnāt\ *adj* [ME *ornat*, fr. L *ornatus*, pp. of
embellish; akin to L *ordo* order — more at ORDER]
by elaborate rhetoric or florid style 2 : elabor
decorated — **or·nate·ly** *adv* — **or·nate·ness** *n*

or·nery \ˈȯr-nə-rē, ˈär-; ˈȯrn-rē, ˈärn-\ *adj* **or·ner**
ordinary] (1816) : having an irritable dispositio
or·neri·ness *n*

ornith- *or* **ornitho-** *comb form* [L, fr. Gk, fr. *orni*
ERNE] : bird ⟨*ornith*ology⟩

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

O I P E
IAP35
NOV 03 2005
PATENT & TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,739	10/14/2003	Dean J. Larson	LAM1P167X2/P1066X	6129

22434 7590 10/14/2005

BEYER WEAVER & THOMAS LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER	
ZERVIGON, RUDY	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

BEYER WEAVER & THOMAS, LLP
ATTY: MBL ASSOC: MBL
ACTION: final Reject 2+3mo
Notice of Appeal + Drawings
DUE DATES: 12·14·05
1·14·06 ← 4·14·06
DOCKETED: 10/18 BY: ael
DOCKET NO.: LAM1P167X2·US

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/685,739	**Applicant(s)** LARSON ET AL.
	Examiner Rudy Zervigon	**Art Unit** 1763

O I P E IAP3
NOV 03 2005
PATENT & TRADEMARK OFFICE

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 27 July 2005.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 14 October 2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

2

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "master fixed orifice" must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting[1]

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

---

[1] As of the date of the Examiner's action, Applicant's Terminal Disclaimer filed 7/27/2005 was not considered by TC1700 Legal Instrument Examiners. The Examiner maintains the DP rejection until Applicant's TD is deemed proper.

harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/318,612. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 10/318,612 do not teach process gas "orifice", as claimed in all 18 claims of the present application. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide "orifice" to the gas conveying device of copending Application No. 10/318,612. Motivation to provide "orifice" to the gas conveying device of copending Application No. 10/318,612 is for controlled conveyace of process gas.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-3, 17, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Motoda; Takashi et al. (US 5,496,408 A). Motoda teaches an apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to the gas supply ("impurity gas" on 43a; Figure 7), wherein the flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from the gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7), wherein the master leg (connecting 43a and 44; Figure 7) comprises a master fixed orifice[2] (inherent, all piping have "orifice"); and a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), wherein the first slave leg (connecting 43a and 50a; Figure 7) comprises: a first slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) fixed orifice (inherent, all piping have "orifice"), as claimed by claim 1.

Morimoto further teaches:

i. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, further comprising: a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7) and the first slave leg (connecting 43a and 50a; Figure 7), wherein the second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 2

---

[2] Orifice ***n*** – an opening though which something may pass. Merriam-Webster's Collegiate Dictionary - 10th Ed.

ii. The apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 2, further comprising: a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with the flow divider (" T " near 43a; Figure 7) and in parallel with the master leg (connecting 43a and 44; Figure 7), the first slave leg (connecting 43a and 50a; Figure 7), and the second slave leg (connecting 43a and 50b; Figure 7), wherein the third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 3

iii. A semiconductor chip formed using the apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, as claimed by claim 17 – Applicant's "A semiconductor chip formed using the apparatus" is a recitation of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

iv. The apparatus, as recited in claim 18, further comprising a joining manifold (28; Figure 7) for combining output from the first slave leg (connecting 43a and 50a; Figure 7), the second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) connected between the first slave leg (connecting 43a and 50a; Figure 7), the second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) and a zone (28; Figure 7) of the at least two zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) of the process chamber (3; Figure 7), as claimed by claim 19

v. The apparatus, as recied in claim 3, futher comprising a joining manifold (28; Figure 7) for combining output from the first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) connected between the first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and the third slave leg (connecting 43a and 50c; Figure 7) and a zone (28; Figure 7) of a process chamber (3; Figure 7), as claimed by claim 20

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 4-7, 9, 10, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) in view of Shinozuka; Shyuhei et al. (US 6,315,858 B1). Motoda is discussed above. Motoda does not teach

vi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising: a fourth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), and Motoda's third slave leg (connecting 43a and 50c; Figure 7), wherein the fourth slave leg comprises: a fourth slave leg valve; and a fourth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1); and a fifth slave leg in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), Motoda's second slave leg (connecting 43a and 50b; Figure 7), Motoda's third slave leg (connecting 43a and 50c; Figure 7), and The fourth slave leg, wherein The fifth slave leg comprises: a fifth slave leg valve; and a fifth slave leg fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 4

vii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, further comprising a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), third slave leg (connecting 43a and 50c; Figure 7), fourth slave leg, and fifth slave leg, as claimed by claim 5

viii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 5, wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller, as claimed by claim 6

ix. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 6, wherein The tuning gas system is in fluid connection with Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimd by claim 7

x. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 8, wherein the first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 9

xi. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 4, the Motoda's first, second, third, fourth, and fifth leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 10

xii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, wherein the first, second, and third leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 12

xiii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 1, wherein Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1) and Motoda's first leg fixed orifices (inherent, all piping have "orifice"; see Footnote 1) are flat plate fixed orifices, as claimed by claim 15

Shinozuka teaches a process gas delivery apparatus (Figure 5; column 4; lines 51-58) including an equivalent flat plate fixed orifice (39; Figure 5, 6) and a tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control.

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) for process gas delivery and control, inclusive, for Motoda to reproduce his slave leg apparatus parts.

Motivation for Motoda to add Shinozuka's equivalent flat plate fixed orifice (39; Figure 5, 6) and tuning gas system (column 4; lines 51-58) including mass flow controllers (43, 49; Figure 2) is for process gas delivery and control resulting in area-specific substrate processing as taught by Shinozuka (column 1, line 64 – column 2, line 8). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

8. Claims 8, 11, 13, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A). Motoda and Shinozuka are discussed above. Motoda and Shinozuka do not teach Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 7, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 8

Motoda and Shinozuka do not teach:

i. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 10, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 11

ii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 12, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 13

iii. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 3, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 14

iv. Motoda's apparatus (Figure 7; column 10, line 23 - column 11, line 47), as recited in claim 15, further comprising a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 17

v. An apparatus (Figure 7; column 10, line 23 - column 11, line 47) for providing a gas ("impurity gas" on 43a; Figure 7) from a gas supply ("impurity gas" on 43a; Figure 7) to at least two different zones (28, 50a-c, 46a-c; Figure 7; column 10, line 23 - column 11, line 47) in a process chamber (3; Figure 7), comprising: a flow divider (" T " near 43a; Figure 7) for providing a fluid connection to Motoda's gas supply ("impurity gas" on 43a; Figure 7), wherein Motoda's flow divider (" T " near 43a; Figure 7) splits gas ("impurity gas" on 43a; Figure 7) flow from Motoda's gas supply ("impurity gas" on 43a; Figure 7) into a plurality of legs (immediate upstream of " T " near 43a; Figure 7); a master leg (connecting 43a and 44; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7), wherein Motoda's master leg (connecting 43a and 44; Figure 7) comprises a master flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a first slave leg (connecting 43a and 50a; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), wherein Motoda's first slave leg (connecting 43a and 50a; Figure 7) comprises: a first slave leg (connecting 43a and 50a; Figure 7) valve (29); and a first slave leg (connecting 43a and 50a; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a second slave leg (connecting 43a and 50b; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7) and Motoda's first slave leg (connecting 43a and 50a; Figure 7), wherein Motoda's second slave leg (connecting 43a and 50b; Figure 7) comprises: a second slave leg (connecting 43a and 50b; Figure 7) valve (29); and a second slave leg (connecting 43a and 50b; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a third slave leg (connecting 43a and 50c; Figure 7) in fluid connection with Motoda's flow divider (" T " near 43a; Figure 7) and in parallel with Motoda's master leg (connecting 43a and 44; Figure 7), Motoda's first slave leg (connecting 43a and 50a; Figure 7), and Motoda's second slave leg (connecting 43a and 50b; Figure 7), wherein Motoda's third slave leg (connecting 43a and 50c; Figure 7) comprises: a third slave leg

> (connecting 43a and 50c; Figure 7) valve (29); and a third slave leg (connecting 43a and 50c; Figure 7) flat plate fixed orifice (inherent, all piping have "orifice"; see Footnote 1); a tuning gas system in fluid connection with at least one of Motoda's master leg (connecting 43a and 44; Figure 7), first slave leg (connecting 43a and 50a; Figure 7), second slave leg (connecting 43a and 50b; Figure 7), and third slave leg (connecting 43a and 50c; Figure 7), wherein The tuning gas system comprises: at least one tuning gas source; and at least one mass flow controller; and a zone selection device connected to Motoda's master leg (connecting 43a and 44; Figure 7) down stream from Motoda's master fixed orifice (inherent, all piping have "orifice"; see Footnote 1), as claimed by claim 18

Ohmi teaches a zone selection device ("monoblock valves" inside dotted lines; Figure 4; column 10; lines 16-30) for a gas delivery apparatus (Figure 1).

It would have been obvious to one of ordinary skill in that art at the time the invention was made for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus.

Motivation for Motoda and Shinozuka to add Ohmi's zone selection device to Motoda and Shinozuka's apparatus is for minimizing "dead zones" as taught by Shinozuka's "monoblock valves" (column 9, lines 5-10).

Response to Arguments

9. Applicant's arguments filed July 27, 2005 have been fully considered but they are not persuasive.

10. With respect to Applicant's opposition to the Examiner's Webster's dictionary citation for guidance in defining Applicant's claimed "orifice", it is well established that claim terms are issued their "plain meaning" according to MPEP 2111.01: Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003).

11. Applicant states that none of the cited references teach Applicant's "flat plate fixed orifice" because none of the cited references teach Applicant's Figure 19 illustration of "a tube 1904 with a flat plate 1980 with a fixed aperture placed across the diameter of the tube to define the orifice area." Based on Applicant's description, the Examiner maintains his interpritation of Shinozuka, which the Examiner pointed out as teaching said "flat plate fixed orifice", who clearly shows a tube (39; Figure 6) with a flat plate (39a) with a fixed aperture (39b), once maintained at a desired opening area, placed across the diameter of the tube (39) to define the orifice area (39b).

12. In response to applicant's argument that the Examiner's combination of Motoda; Takashi et al. (US 5,496,408 A) and Shinozuka; Shyuhei et al. (US 6,315,858 B1) in view of Ohmi; Tadahiro et al. (US 5,313,982 A) are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed.

Cir. 1992). In this case, the cited references are each in the field of Applicant's endeavor – fluid delivery and control.

Conclusion

13. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

10/12/05

or·gan·za \ȯr-'gan-zə\ *n* [prob. alter. of *Lorganza*, a trademark] (1820) : a sheer dress fabric (as of silk or nylon) resembling organdy

or·gan·zine \'ȯr-gən-ˌzēn\ *n* [F or It; F *organsin*, fr. It *organzino*] (1699) : a raw silk yarn used for warp threads in fine fabrics

or·gasm \'ȯr-ˌga-zəm\ *n* [NL *orgasmus*, fr. Gk *orgasmos*, fr. *organ* to grow ripe, be lustful; prob. akin to Skt *ūrjā* sap, strength] (ca. 1763) : intense or paroxysmal excitement; *esp* : the climax of sexual excitement that is usu. accompanied by the ejaculation of semen in the male and vaginal contractions in the female — **or·gas·mic** \ȯr-'gaz-mik\ *also* **or·gas·tic** \-'gas-tik\ *adj*

or·geat \'ȯr-ˌzhä(t)\ *n* [F, fr. MF, fr. *orge* barley, fr. L *hordeum*; akin to OHG *gersta* barley] (1754) : a sweet almond-flavored nonalcoholic syrup used as a cocktail ingredient or food flavoring

or·gi·as·tic \ˌȯr-jē-'as-tik\ *adj* [Gk *orgiastikos*, fr. *orgiazein* to celebrate orgies, fr. *orgia*] (1698) 1 : of, relating to, or marked by orgies 2 : characterized by unrestrained emotion : FRENZIED — **or·gi·as·ti·cal·ly** \-ti-k(ə-)lē\ *adv*

or·gone \'ȯr-ˌgōn\ *n* [prob. fr. *orgasm* + *-one* (as in *hormone*)] (1942) : a vital energy held to pervade nature and be a factor in health in the theories of Wilhelm Reich

or·gu·lous \'ȯr-gyə-ləs, -gə-\ *adj* [ME, fr. OF *orgueilleus*, fr. *orgueil* pride, of Gmc origin; akin to OHG *urguol* distinguished] (13c) : PROUD

or·gy \'ȯr-jē\ *n, pl* **orgies** [MF *orgie*, fr. L *orgia*, pl., fr. Gk; akin to Gk *ergon* work — more at WORK] (ca. 1561) 1 : secret ceremonial rites held in honor of an ancient Greek or Roman deity and usu. characterized by ecstatic singing and dancing 2 a : drunken revelry b : a sexual encounter involving many people; *also* : an excessive sexual indulgence 3 : something that resembles an orgy in lack of control or moderation ⟨an ~ of destruction⟩

-oria *pl of* -ORIUM

-orial *adj suffix* [ME, fr. L *-orius* -ory + ME *-al*] : of, belonging to, or connected with ⟨combinat*orial*⟩

orib·a·tid \ȯ-'ri-bə-təd, ˌȯr-ə-'ba-təd\ *n* [NL *Oribatidae* (coextensive with *Oribatoidea*), fr. *Oribata*, genus name, fr. Gk *oribatēs* walking the mountains, fr. *oros* mountain + *-batēs*, fr. *bainein* to go — more at ORIENT, COME] (1875) : any of a superfamily (Oribatoidea) of small oval eyeless nonparasitic mites having a heavily sclerotized integument with a leathery appearance — **oribatid** *adj*

ori·el \'ȯr-ē-əl, 'ȯr-\ *n* [ME, porch, oriel, fr. MF *oriol* porch] (14c) : a large bay window projecting from a wall and supported by a corbel or bracket

^{1}**ori·ent** \'ȯr-ē-ənt, 'ȯr-, -ē-ˌent\ *n* [ME, fr. MF, fr. L *orient-*, *oriens*, fr. prp. of *oriri* to rise; akin to Skt *ṛnoti* he moves, arises, Gk *ornynai* to rouse, *oros* mountain] (14c) 1 *archaic* : EAST 1b 2 *cap* : EAST 2 3 a : a pearl of great luster b : the luster of a pearl

^{2}**orient** *adj* (15c) 1 *archaic* : ORIENTAL 1 2 a : LUSTROUS, SPARKLING ⟨~ gems⟩ b *archaic* : RADIANT, GLOWING 3 *archaic* : rising in the sky

^{3}**ori·ent** \'ȯr-ē-ˌent, 'ȯr-\ *vt* [F *orienter*, fr. MF, fr. *orient*] (ca. 1741) 1 a : to cause to face or point toward the east; *specif* : to build (a church or temple) with the longitudinal axis pointing eastward and the chief altar at the eastern end b : to set or arrange in any determinate position esp. in relation to the points of the compass c : to ascertain the bearings of 2 a : to set right by adjusting to facts or principles b : to acquaint with the existing situation or environment 3 : to direct (as a book or film) toward the interests of a particular group 4 : to cause the axes of the molecules of to assume the same direction

ori·en·tal \ˌȯr-ē-'en-tᵊl, ˌȯr-\ *adj* (14c) 1 *often cap* : of, relating to, or situated in the Orient 2 a : of superior grade, luster, or value b : being corundum or sapphire but simulating another gem in color 3 *often cap* : of, relating to, or having the characteristics of Orientals 4 *cap* : of, relating to, or constituting the biogeographic region that includes Asia south and southeast of the Himalayas and the Malay Archipelago west of Wallace's line — **ori·en·tal·ly** \-tᵊl-ē\ *adv*

Oriental *n* (15c) : a member of one of the indigenous peoples of the Orient

oriental fruit moth *n* (1921) : a small nearly cosmopolitan moth (*Grapholita molesta*) prob. of Japanese origin whose larva is injurious to the twigs and fruit of orchard trees and esp. the peach — called also *oriental peach moth*

Ori·en·ta·lia \ˌȯr-ē-ən-'tāl-yə, ˌȯr-, -ˌen-, -'tā-lē-ə\ *n pl* [NL] (1903) : materials concerning or characteristic of the Orient

ori·en·tal·ism \ˌȯr-ē-'en-tᵊl-ˌi-zəm\ *n, often cap* (1769) 1 : a trait, custom, or habit of expression characteristic of oriental peoples 2 : scholarship or learning in oriental subjects — **ori·en·tal·ist** \-tᵊl-ist\ *n, often cap*

ori·en·tal·ize \-tᵊl-ˌīz\ *vb* **-ized; -iz·ing** *vt* (1823) *often cap* : to make oriental ~ *vi, often cap* : to become oriental

Oriental poppy *n* (1731) : an Asian perennial poppy (*Papaver orientale*) that is commonly cultivated for its large showy flowers

Oriental rug *n* (1881) : a handwoven or hand-knotted one-piece rug or carpet made in the Orient — called also *Oriental carpet*

ori·en·tate \'ȯr-ē-ən-ˌtāt, 'ȯr-, -ˌen-\ *vb* **-tat·ed; -tat·ing** *vt* (1849) : ORIENT ~ *vi* : to face or turn to the east

ori·en·ta·tion \ˌȯr-ē-ən-'tā-shən, ˌȯr-, -ˌen-\ *n* (1839) 1 a : the act or process of orienting or of being oriented b : the state of being oriented; *broadly* : ARRANGEMENT, ALIGNMENT 2 : a usu. general or lasting direction of thought, inclination, or interest 3 : change of position by organs, organelles, or organisms in response to external stimulus — **ori·en·ta·tion·al** \-shnəl, -shə-nᵊl\ *adj* — **ori·en·ta·tion·al·ly** *adv*

ori·ent·ed \'ȯr-ē-ˌen-təd, 'ȯr-\ *adj* (1944) : intellectually, emotionally, or functionally directed ⟨humanistically ~ scholars⟩

ori·en·teer \ˌȯr-ē-ən-'tir, ˌȯr-, -ˌen-\ *n* [back-formation fr. *orienteering*] (1965) : one who engages in orienteering

ori·en·teer·ing \ˌȯr-ē-ən-'tir-iŋ, ˌȯr-, -ˌen-\ *n* [modif. of Sw *orientering*, fr. *orientera* to orient] (1948) : a cross-country race in which each participant uses a map and compass to navigate between checkpoints along an unfamiliar course

or·i·fice \'ȯr-ə-fəs, 'är-\ *n* [ME, fr. MF, fr. LL *orificium*, fr. L *or-*, *os* mouth + *facere* to make, do — more at ORAL, DO] (15c) : an opening (as a vent, mouth, or hole) through which something may pass — **or·i·fi·cial** \ˌȯr-ə-'fi-shəl, ˌär-\ *adj*

ori·flamme \'ȯr-ə-ˌflam, 'är-\ *n* [ME *oriflamble*, the banner of St. Denis, fr. MF, fr. ML *aurea flamma*, lit., golden flame] (1600) : a banner, symbol, or ideal inspiring devotion or courage

ori·ga·mi \ˌȯr-ə-'gä-mē\ *n* [Jp, fr. *ori* fold + *kam*
Japanese art or process of folding squares of pa
tional shapes

orig·a·num \ə-'ri-gə-nəm\ *n* [ME, fr. L, wild m
non] (14c) : any of several aromatic mints (esp.
as seasonings; *esp* : OREGANO 1

or·i·gin \'ȯr-ə-jən, 'är-\ *n* [ME *origine*, prob. fr. M
fr. *oriri* to rise — more at ORIENT] (15c) 1 : AN
a : rise, beginning, or derivation from a source b
something begins or rises or from which it derives
is forgotten⟩; *also* : something that creates, cause
other ⟨this spring is the ~ of the brook⟩ 3 : the m
larger attachment of a muscle 4 : the intersection
syn ORIGIN, SOURCE, INCEPTION, ROOT mean the p
thing begins its course or existence. ORIGIN appl
persons from which something is ultimately deriv
causes operating before the thing itself comes into
tion into the *origin* of baseball⟩. SOURCE applies m
where something springs into being ⟨the *source* of
of recurrent trouble⟩. INCEPTION stresses the beg
without implying causes ⟨the business has bee
inception⟩. ROOT suggests a first, ultimate, or fund
not easily discerned ⟨the real *root* of the violence⟩

^{1}**orig·i·nal** \ə-'rij-ə-nᵊl, -'rij-nəl\ *n* (14c) 1 *archaic*
from which something arises; *specif* : ORIGINATO
which a copy, reproduction, or translation is mad
posed firsthand 3 a : a person of fresh initiative
b : a unique or eccentric person

^{2}**original** *adj* (14c) 1 : of, relating to, or constitu
ginning : INITIAL ⟨the ~ part of the house⟩ 2
derivative, or imitative b : being the first insta
which a copy, reproduction, or translation is or ca
pendent and creative in thought or action : INVENTI

orig·i·nal·i·ty \ə-ˌri-jə-'na-lə-tē\ *n* (1742) 1 : th
being original 2 : freshness of aspect, design, or s
of independent thought or constructive imagination

orig·i·nal·ly \ə-'ri-jə-nᵊl-ē; -'rij-nə-lē, -'ri-jən-\
: by origin or derivation : INHERENTLY 2 : in th
first place : INITIALLY 3 : in a fresh or original man

original sin *n* (14c) : the state of sin that accordin
ogy characterizes all human beings as a result of Ad

orig·i·nate \ə-'ri-jə-ˌnāt\ *vb* **-nat·ed; -nat·ing** *vt* (16
: INITIATE ~ *vi* : to take or have origin : BEGIN
orig·i·na·tion \-ˌri-jə-'nā-shən\ *n* — **orig·i·na·to**

orig·i·na·tive \ə-'ri-jə-ˌnā-tiv, -nə-\ *adj* (1827) : hav
nate : CREATIVE — **orig·i·na·tive·ly** *adv*

O-ring \'ō-ˌriŋ\ *n* (1946) : a ring (as of synthetic
gasket

ori·ole \'ȯr-ē-ˌōl, 'ȯr-, -ē-əl\ *n* [F *oriol*, fr. L *aureo*
golden — more at AUREUS] (1776) 1 : any of va
colored Old World passerine birds (family Oriolid
Oriolus) 2 : any of various New World passerin
teridae and esp. genus *Icterus*) of which the male
yellow or black and orange

Ori·on \ə-'rī-ən, ō-\ *n* [L, fr. Gk *Ōriōn*] 1 : a
Artemis in Greek mythology 2 [L (gen. *Orionis*)]
the equator east of Taurus represented on chart
hunter with belt and sword

or·is·mol·o·gy \ˌȯr-əz-'mä-lə-jē, ˌär-\ *n* [Gk *hor*
horizein to define) + E *-logy* — more at HORIZON]
of defining technical terms — **or·is·mo·log·i·cal**
ˌär-; ō-ˌriz-\ *adj*

or·i·son \'ȯr-ə-sən, 'är-, -zən\ *n* [ME, fr. OF, fr. L
L, oration] (13c) : PRAYER

-orium *n suffix, pl* **-oriums** *or* **-oria** [L, fr. neut. o
⟨haust*orium*⟩

Ori·ya \ō-'rē-ə\ *n* (1801) : the Indo-Aryan languag

Or·lean·ist \'ȯr-lē-ə-nist, ȯr-'lē-(ə-)nist\ *n* (1834) :
Orleans family in its claim to the throne of Franc
younger brother of Louis XIV

Or·lon \'ȯr-ˌlän\ *trademark* — used for an acrylic fib

or·lop deck \'ȯr-ˌläp-\ *n* [ME *overlop* deck of a sing
overlōp, lit., something that overleaps] (1758) : th
ship having four or more decks

Or·mazd \'ȯr-(ˌ)məzd, -ˌmazd\ *n* [Per *Urmazd*, fr. M
mazdāh-] (1603) : AHURA MAZDA

or·mo·lu \'ȯr-mə-ˌlü\ *n, often attrib* [F *or moulu*
(1765) : golden or gilded brass or bronze used for d
(as in mounts for furniture)

^{1}**or·na·ment** \'ȯr-nə-mənt\ *n* [ME, fr. OF *ornemen*
fr. *ornare*] (13c) 1 *archaic* : a useful accessory 2
lends grace or beauty b : a manner or quality tha
whose virtues or graces add luster to a place or soci
adorning or being adorned 5 : an embellishing not
the essential harmony or melody — called also *emb*

^{2}**or·na·ment** \-ˌment\ *vt* (1720) : to provide with orna
syn see ADORN

^{1}**or·na·men·tal** \ˌȯr-nə-'men-tᵊl\ *adj* (1646) : of, rel
as ornament; *specif* : grown as an ornamental —
\-tᵊl-ē\ *adv*

^{2}**ornamental** *n* (1650) : a decorative object; *esp* : a
its beauty rather than for use

or·na·men·ta·tion \ˌȯr-nə-mən-'tā-shən, -ˌmen-\
thing that ornaments : EMBELLISHMENT 2 : the ac
menting : the state of being ornamented

or·nate \ȯr-'nāt\ *adj* [ME *ornat*, fr. L *ornatus*, pp.
embellish; akin to L *ordo* order — more at ORDER
by elaborate rhetoric or florid style 2 : elabo
decorated — **or·nate·ly** *adv* — **or·nate·ness** *n*

or·nery \'ȯr-nə-rē, 'är-; 'ȯrn-rē, 'ärn-\ *adj* **or·ne**
ordinary] (1816) : having an irritable dispositio
or·neri·ness *n*

ornith- *or* **ornitho-** *comb form* [L, fr. Gk, fr. *orni*
ERNE] : bird ⟨*ornith*ology⟩

This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☐ BLACK BORDERS

☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES

☑ FADED TEXT OR DRAWING

☑ BLURRED OR ILLEGIBLE TEXT OR DRAWING

☐ SKEWED/SLANTED IMAGES

☑ COLOR OR BLACK AND WHITE PHOTOGRAPHS

☐ GRAY SCALE DOCUMENTS

☑ LINES OR MARKS ON ORIGINAL DOCUMENT

☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY

☐ OTHER: ______________________________

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.